

157. (New) The method of claim 156 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to said crude phenolic bottoms stream of from 0.45 to 0.6:1.

158. (New) The method of claim 156 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to said crude phenolic bottoms stream of at least 0.3:1.

159. (New) The method of claim 156 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

160. (New) The method of claim 156 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass are removed through one or more aqueous streams.

161. (New) The method of claim 156 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

162. (New) The method of claim 157 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

163. (New) The method of claim 157 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

164. (New) The method of claim 158 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized

aralkyl hydroperoxide cleavage mass, and removing at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

165. (New) The method of claim 158 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

166. (New) The method of claim 159 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 80 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

167. (New) The method of claim 159 wherein said means for producing a crude phenol bottoms stream comprises producing a partially or wholly neutralized aralkyl hydroperoxide cleavage mass, and removing at least 90 wt.% of the salts of neutralization present in said partially or wholly neutralized aralkyl hydroperoxide cleavage mass through one or more aqueous streams.

Sub F
168. (New) A process for manufacturing phenolic compounds comprising:
separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;
separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;
treating said crude phenol bottoms stream with a quantity of an organic diluent effective to solubilize said remainder of said phenolic compounds, producing a mixture;
allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase.

169. (New) The method of claim 168 wherein said organic diluent has a first density sufficiently less than a second density of phenol to attract said remainder of said

phenolic compounds from said mixture into an organic phase comprising said organic diluent.

170. (New) The method of claim 168 wherein said first density is at least about 1 pcf less than said second density.

171. (New) The method of claim 168 wherein said first density is at least about 2 pcf less than said second density.

172. (New) The method of claim 168 wherein said organic diluent comprises a combined hydrocarbon density of from about 51 to about 53.5 pcf.

173. (New) The method of claim 168 wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

174. (New) The method of claim 172 wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

175. (New) The method of claim 168 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

176. (New) The method of claim 169 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

177. (New) The method of claim 170 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

178. (New) The method of claim 171 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

179. (New) The method of claim 172 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

180. (New) The method of claim 173 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

181. (New) The method of claim 174 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

182. (New) The method of claim 168 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

183. (New) The method of claim 169 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

184. (New) The method of claim 170 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

185. (New) The method of claim 171 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

186. (New) The method of claim 172 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

187. (New) The method of claim 173 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

188. (New) The method of claim 174 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

189. (New) The method of claim 168 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

190. (New) The method of claim 168 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

191. (New) The method of claim 169 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

192. (New) The method of claim 169 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

193. (New) The method of claim 170 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

194. (New) The method of claim 170 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

195. (New) The method of claim 171 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

196. (New) The method of claim 171 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

197. (New) The method of claim 172 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

198. (New) The method of claim 172 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

199. (New) The method of claim 173 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

200. (New) The method of claim 173 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

201. (New) The method of claim 174 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

202. (New) The method of claim 174 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

203. (New) The method of claim 188 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from about 0.45:1 to about 0.6:1.

204. (New) The method of claim 188 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.

205. (New) A process for manufacturing phenolic compounds comprising:

separating acetone and phenol from a wholly or partially neutralized aralkyl hydroperoxide cleavage mass comprising salts of neutralization to produce a crude phenolic stream comprising said salts of neutralization;
separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;
treating said crude phenol bottoms stream with a quantity of an organic diluent effective to solubilize said remainder of said phenolic compounds to produce a mixture, wherein a weight ratio of said organic diluent to said crude phenolic bottoms stream is at least 0.15:1;
allowing said mixture to phase separate, recovering said phenolic compounds in an organic phase.

206. (New) The method of claim 205 wherein said organic diluent has a first density sufficiently less than a second density of phenol to attract said remainder of said phenolic compounds from said mixture into an organic phase comprising said organic diluent.

207. (New) The method of claim 205 wherein said first density is at least about 1 pcf less than said second density.

208. (New) The method of claim 205 wherein said first density is at least about 2 pcf less than said second density.

209. (New) The method of claim 205 wherein said organic diluent comprises a combined hydrocarbon density of from about 51 to about 53.5 pcf.

210. (New) The method of claim 205 wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

211. (New) The method of claim 209 wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

212. (New) The method of claim 205 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

213. (New) The method of claim 206 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

214. (New) The method of claim 207 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

215. (New) The method of claim 208 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

216. (New) The method of claim 209 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

217. (New) The method of claim 210 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

218. (New) The method of claim 211 further comprising removing at least 80 wt.% of the salts of neutralization in one or more aqueous streams.

219. (New) The method of claim 205 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

220. (New) The method of claim 206 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

221. (New) The method of claim 207 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

222. (New) The method of claim 208 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

223. (New) The method of claim 209 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

224. (New) The method of claim 210 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

225. (New) The method of claim 211 further comprising removing at least 90 wt.% of the salts of neutralization in one or more aqueous streams.

226. (New) A process for manufacturing phenolic compounds comprising:
separating acetone and phenol from a wholly or partially neutralized aralkyl

hydroperoxide cleavage mass comprising salts of neutralization to produce
a crude phenolic stream comprising said salts of neutralization;

Subt
F2
E1

separating said crude phenolic stream to produce a concentrated phenolic-rich stream and a crude phenol bottoms stream, said crude phenol bottoms stream comprising said salts of neutralization and a remainder of said phenolic compounds;

treating said crude phenol bottoms stream with a quantity of an organic diluent effective to solubilize said remainder of said phenolic compounds producing a mixture, wherein said organic diluent has a first density sufficiently less than a second density of phenol to attract said remainder of said phenolic compounds from said mixture into an organic phase comprising said organic diluent;

allowing said mixture to phase separate to produce an organic phase comprising said phenolic compounds.

227. (New) The method of claim 226 further comprising recovering said phenolic compounds from said organic phase.

228. (New) The method of claim 227 wherein said first density is at least about 1 pcf less than said second density.

229. (New) The method of claim 227 wherein said first density is at least about 2 pcf less than said second density.

230. (New) The method of claim 228 wherein said organic diluent comprises a combined hydrocarbon density of from about 51 to about 53.5 pcf.

231. (New) The method of claim 228 wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

232. (New) The method of claim 230 wherein said organic diluent comprises from about 60 to about 90 wt.% cumene, from about 10 to about 30 wt.% AMS, and less than 10 wt.% other hydrocarbons.

233. (New) The method of claim 227 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

234. (New) The method of claim 228 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.

235. (New) The method of claim 229 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.
236. (New) The method of claim 230 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.
237. (New) The method of claim 231 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.
238. (New) The method of claim 232 wherein at least 80 wt.% of said salts of neutralization are removed in one or more aqueous streams.
239. (New) The method of claim 227 wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.
240. (New) The method of claim 228 wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.
241. (New) The method of claim 229 wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.
242. (New) The method of claim 230 wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.
243. (New) The method of claim 231 wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.
244. (New) The method of claim 232 wherein at least 90 wt.% of said salts of neutralization are removed in one or more aqueous streams.
245. (New) The method of claim 227 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.
246. (New) The method of claim 227 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.3:1.
247. (New) The method of claim 227 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

248. (New) The method of claim 228 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45 to 0.6:1.

249. (New) The method of claim 228 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

250. (New) The method of claim 229 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

251. (New) The method of claim 229 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

252. (New) The method of claim 230 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

253. (New) The method of claim 230 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

254. (New) The method of claim 231 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

255. (New) The method of claim 231 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

256. (New) The method of claim 232 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

257. (New) The method of claim 232 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

258. (New) The method of claim 244 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of from 0.45:1 to 0.6:1.

259. (New) The method of claim 244 wherein said organic phase comprises an organic diluent at a weight ratio of organic diluent to crude phenolic bottoms stream of at least 0.15:1.

REMARKS

The new claims are submitted for the examiner's convenience and in an effort to simplify the remaining issues. Care has been taken in the new claims to avoid submission of duplicate claims. The new claims do not narrow the scope of the previously pending claims. To the extent that the arguments submitted in the Response to Final Action are relevant to the new claims, Applicant respectfully requests that those arguments be considered with respect to the new claims. The new claims are believed to overcome any deficiencies or errors in the claims under 35 U.S.C. § 112 referred to in the Advisory Action.

The examiner commented that there appears to be no basis or description in the specification as filed for "an organic diluent having a density sufficiently less than a second density of said phenol bottoms stream to attract phenol from the mixture into an organic phase." Applicant submits that the relevant limitation in the new claims reads as follows: "wherein said diluent has a first density sufficiently less than a second density of phenol to attract said remainder of said phenolic compounds from said mixture into an organic phase comprising said organic diluent." Applicant respectfully refers the examiner to the following excerpts from the specification, which provide support for the foregoing limitation:

Accordingly, **a hydrocarbon diluent having a lower density than the density of the crude phenol bottoms stream** is added to enhance phase separation between the hydrocarbon and aqueous phase. This method of enhancing phase separation is more effective at removing salts than a method of increasing the salt concentration because by increasing the salt concentration, the amount of salt distributed into the hydrocarbon phase is increased and the effectiveness of the unit operation is reduced.

Diluents which are phase compatible and readily miscible with phenol, have a lower density than phenol, and which are phase incompatible